# ScanMap™
# Software User Manual

Manual No. 50265564, Rev. 02

# Important Information

## Terms Used in this Manual

| | |
|---|---|
| **CAUTION** | **Indicates actions or procedures which may lead to incorrect function of the instrument or connected equipment if not performed correctly.** |

| | |
|---|---|
| **Important** | **Indicates actions or procedures which may affect instrument operation or may lead to an instrument response which is not planned.** |

## *Technical Support Contact Information*


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# Contents

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# *Section 1—Getting Started*

## Introduction

Cameron's ScanMap™ software simplifies the integration of the Scanner 3100 into a SCADA network by enabling the customization of Modbus registers. A user can build a custom Modbus map from scratch and upload it to a Scanner 3100 or modify an existing map. ScanMap is preloaded with three protocol maps that can be used as-is or modified with user-selected registers and units:

- ***S3100_MAP_TEMPLATE_ENRON_DEFAULT.*** Includes registers for Scanner 3100 and up to 20 networked Scanner 2000 series devices. Enron history is included.
- ***S3100_MAP_TEMPLATE_ENRON_BASE_UNIT.*** Includes registers for the Scanner 3100 only. Networked Scanner 2000 series devices are not included. Enron history is included.
- ***S3100_MAP_TEMPLATE_MODBUS.*** This custom map is equivalent to the S3100_MAP_TEMPLATE_ENRON_DEFAULT (32-bit) map, but is presented in a 16-bit standard Modbus format and contains different register addresses. Enron history is not included.

**Important** **First-time ScanMap users are strongly encouraged to first review Sections 2 and 3 to learn about the software settings available and configurable software default settings that can save time in creating a custom map. Instructions for creating and uploading a Modbus map are provided in** Section 4—Creating Databases and Configuring Register Maps, page 15 **and** Section 5—Creating and Uploading a Modbus Map, page 23**.**

**CAUTION** **Before editing an existing database, make certain that it is your intent to *permanently* change the contents. Any changes you make to an existing database will overwrite database content without any prompts to save or cancel.**

**To use an existing database as the starting point for a new database without altering the existing database, choose File>New from Existing and save the file with a unique name. See** Creating a New Database from an Existing Database, page 17**, for details.**

**If changes are made to a preloaded protocol map unintentionally, follow the procedures in** Restoring a Factory Default Database, page 33 **to restore the preloaded protocol map(s).**

To create a custom Modbus map, users will create two files: a database (.smp) file and a custom map (.pmap) file.

- The ***database file (.smp)*** is an editable file used to collect and define the registers needed for export to the custom map.
- The ***custom map (.pmap)*** is a binary (uneditable) file, which can be uploaded to the Scanner 3100 via Cameron's ScanFlash™ software utility.

If desired, the user may also create a manual file (.html) to share map content in a user-friendly format that is easily emailed or printed.

**Important** **Users must have Configurator or Administrator level access to upload a map file to the Scanner 3100. Access levels are assigned using the Scanner 3100 Web Interface. See the Scanner 3100 Web Interface User Manual for details about security administration.**

**A custom map (.pmap) can also be uploaded using the Scanner 3100 web interface. See the Scanner 3100 Web Interface user manual for details.**

# Installation Preparations

Verify that the computer on which the software is being installed meets the following requirements:

***Table 1.1—Installation Requirements***

| System Parameter | Requirement(s) |
|---|---|
| Operating System | Windows® 7 or later |
| Processor | 1 GHz or faster 32-bit (x86) or 64-bit (x64) processor |
| Memory | 256 MB RAM |
| Hard Disk Space | 50 MB for program files, adequate space for data files |
| Display | DirectX 9 graphics 4 with WDDM 1.0 or later |

**Important** **Before attempting to install ScanMap software, ensure that you have local administrator rights to the computer on which the software is to be installed. If the installation is blocked, contact your Information Technology department for assistance.**

## *Firmware/Software Compatibility*

Consider the firmware version of the Scanner 3100 you are using before installing the ScanMap software.

- ScanMap software version 1.1.0 supports Scanner 3100 firmware versions 2.000 and later.
- ScanMap version 1.0.0 supports Scanner 3100 firmware versions 1.100 and 1.103.

## *Installation*

To install the software,

1. Visit Cameron's Measurement website at http://www.c-a-m.com/flowcomputers, select **CAMERON Flow Computer Scanner 3100** and click on the ScanMap install link. A zip file will be downloaded to your laptop or PC.
2. Unzip/extract the installation folder.
3. Open the unzipped installation folder and run the "setup.exe" file. When the installation is complete, a ScanMap desktop shortcut will appear on the computer desktop (Figure 1.1).


*Figure 1.1—ScanMap desktop shortcut*

# Section 2—Navigating the Software

This section provides an overview of the ScanMap software tools and screens. For step-by-step instructions, see Section 3—Configurable Options, page 11 through Section 6—Map/Register Maintenance, page 31.

Note For best viewing, configure your computer display resolution to 1280 × 800 or higher. If a lower resolution is used, portions of the ScanMap interface may be hidden from view.

## Main Screen

The ScanMap main screen (Figure 2.1) is divided into a top section and a bottom section. A toolbar at the top of the screen provides access to user menus. The status bar at the bottom of the screen displays the path to the open database file, the firmware version, and the computer date and time.

Note When the software is opened from the desktop icon or the Windows Start menu, the main screen contains only a toolbar. When the software is opened by double-clicking on a database (.smp) file, the main screen will reflect the contents of the .smp file.

***The top section*** allows the user to enter setup information for a register group, which is the first step in creating a custom map after a database is selected or created. This section also provides a link for changing firmware compatibility, which allows users to quickly create maps for multiple Scanner firmware versions without rebuilding register groups.

***The bottom section*** displays the registers within a selected group and provides links for editing registers and creating a custom map and/or manual.

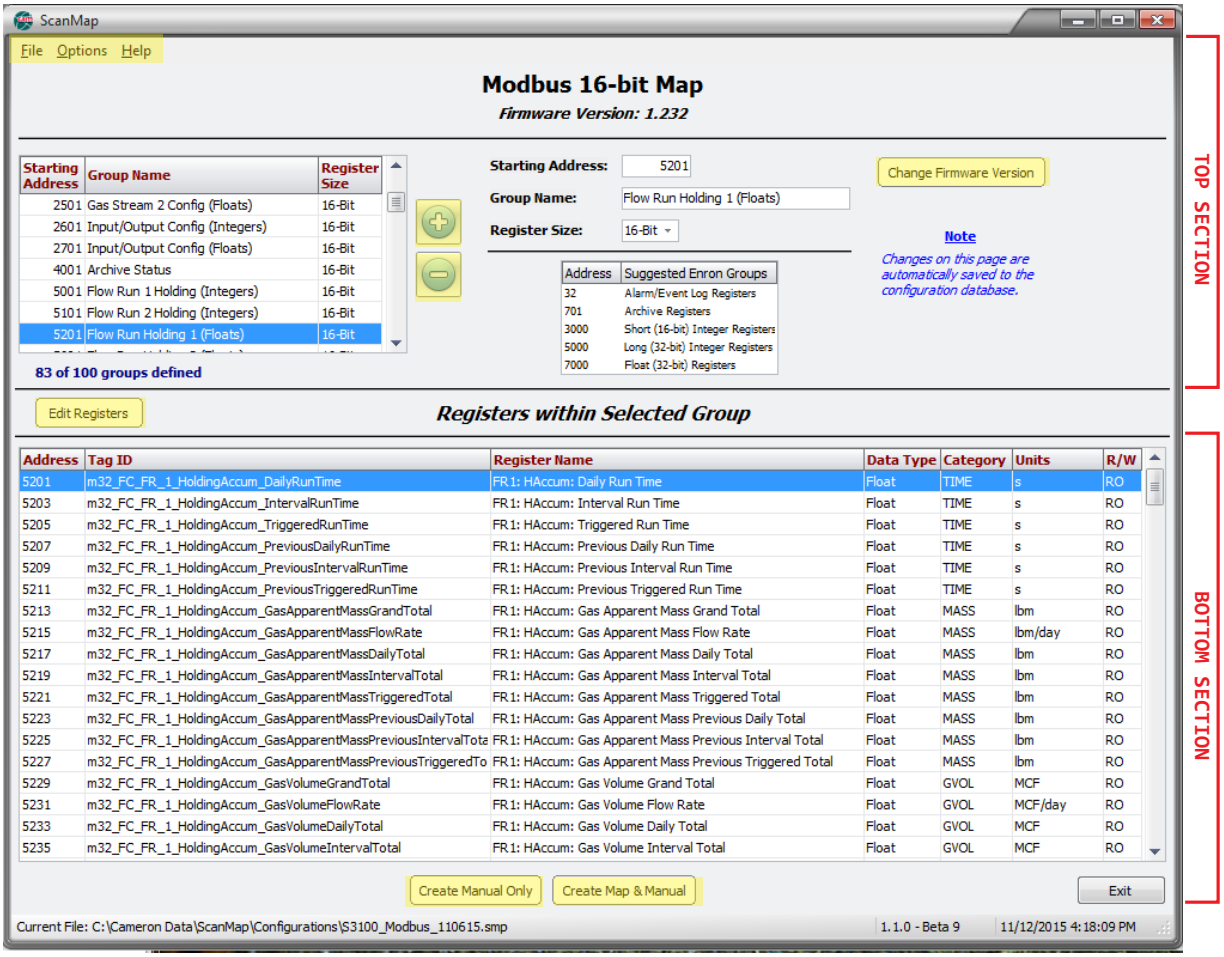


*Figure 2.1—Main screen*

### *Toolbar*

The toolbar at the top of the main screen (Figure 2.1, page 7) provides access to three menus:

- ***File.*** Use this menu to create, open, or change a database. See Section 4—Creating Databases and Configuring Register Maps, page 15, for details.
- ***Options.*** Use this menu to change a map name or access the *General Options* screen (see Section 3—Configurable Options, page 11 for information about setting options from this screen).
- ***Help.*** Use this menu to access information about ScanMap's technical support and license agreement or to access the user manual. See Section 7—Technical Support, page 35 for details.

## Edit Registers Screen

Click the **Edit Registers** button on the main screen (Figure 2.1, page 7) to open the *Edit Registers* screen (Figure 2.2), where you can add, edit, or remove registers from the selected group. See Section 3—Configurable Options, page 11, Section 4—Creating Databases and Configuring Register Maps, page 15, and Section 5—Creating and Uploading a Modbus Map, page 23 for detailed instructions for building a custom map.

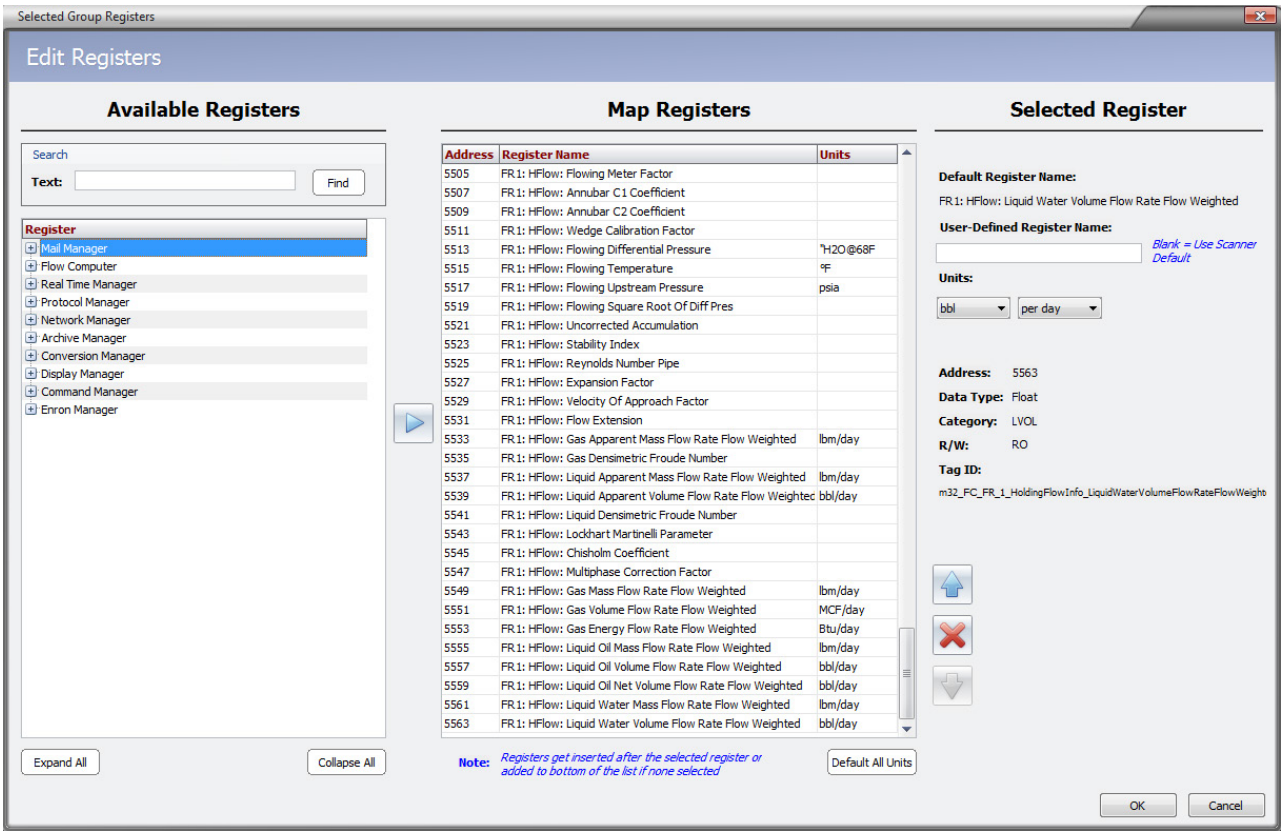


*Figure 2.2—Edit Registers screen*

# General Options Screen

Choosing **Options>General Options** from the main screen opens the *General Options* screen.

From the *General Options* screen (Figure 2.3, page 9), you can perform the following tasks:

- Change default units to SI Units or US Customary
- Change the units for a selected measurement category
- Change default directories for database, map and manual files
- Change input names for easy recognition
- Change analog input and pulse input categories to specify the type of measurement they will provide (pressure, temperature, level, etc.)

See Section 3—Configurable Options, page 11, for detailed instructions about customizing general options.

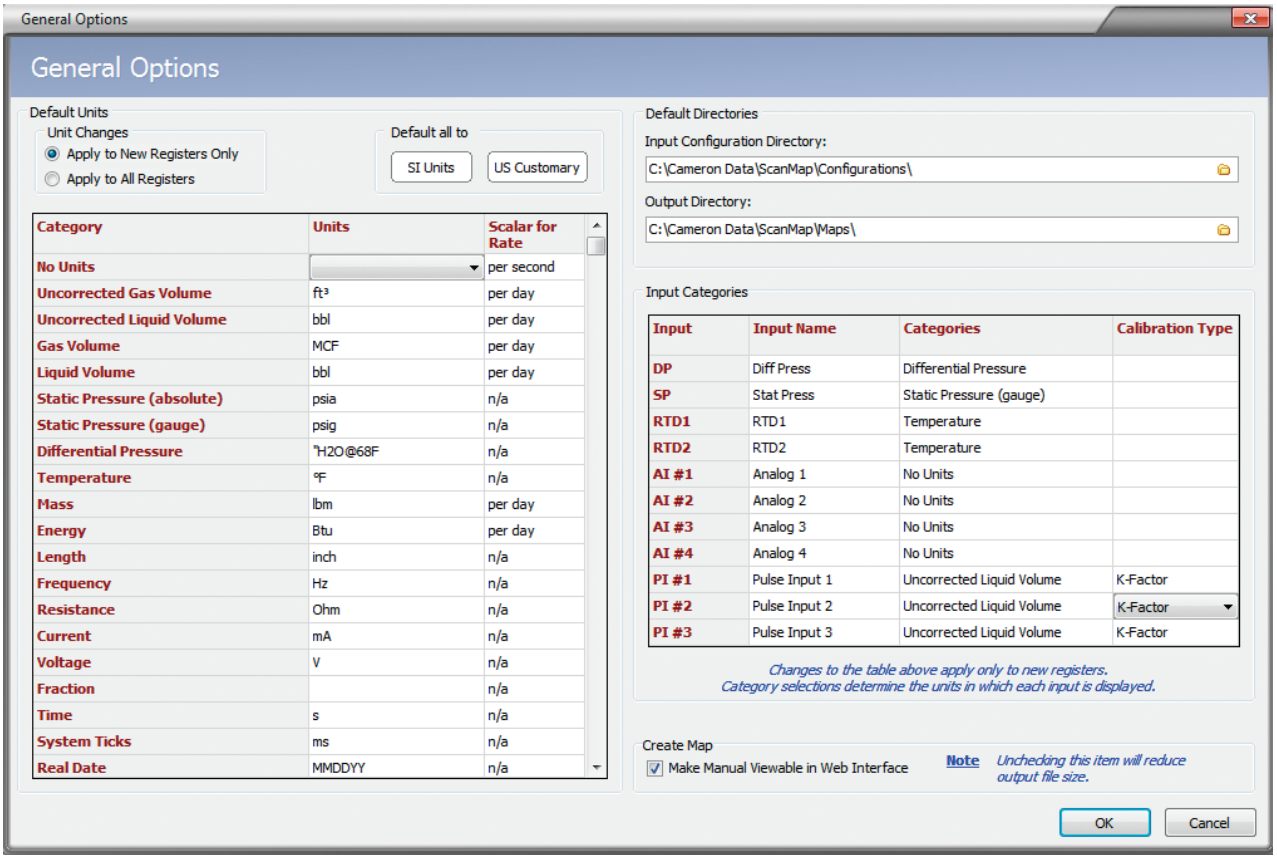


*Figure 2.3—General Options screen*

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# Section 3—Configurable Options

Configure preferred units, register names, etc. from the *General Options* screen (Figure 3.1) before creating a new database to simplify the process of creating the map.

Note Input register name changes will not apply to registers that have already been added to a group. For best results, make input register name changes before creating a database.

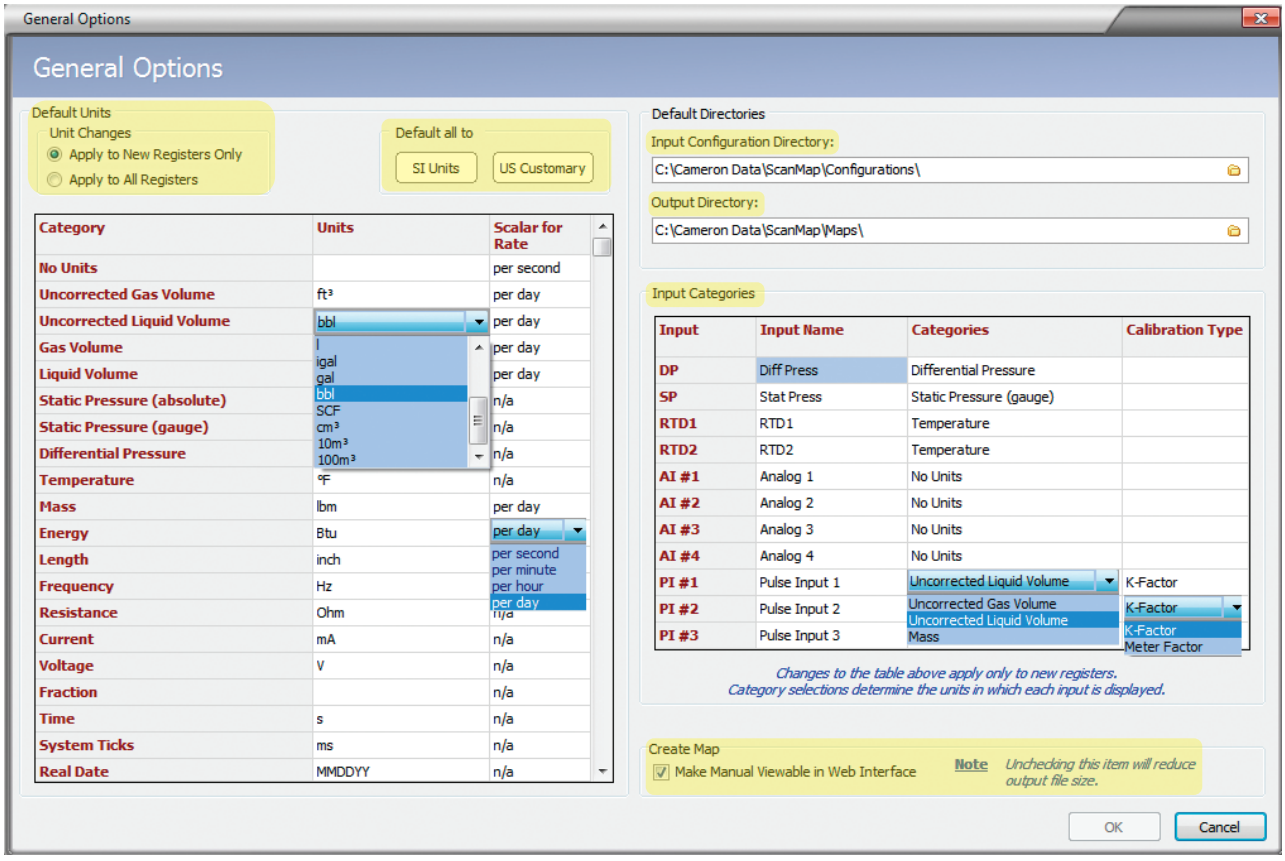


*Figure 3.1—General Options screen configuration options*

## Choosing SI Units or US Customary Units

To change units of measure from SI Units to US Customary (or vice versa), click the **SI Units** or **US Customary** buttons located in the "Default all to" section of the screen, then click **OK** to save your changes.

## Changing Units and Rates of Measurement

The Scanner 3100 pairs Modbus registers with measurement categories and assigns a unit to each category. In addition to supporting SI Units and US Customary units, ScanMap allows a combination of SI Units and US Customary units within a database. To change the unit of measure for an individual category:

1. Click in the "Units" field next to the measurement category on the *General Options* screen.
2. Select the desired unit of measure from the dropdown list.

For example, to change the default unit system to US Customary, but display the temperature displayed in °K, select **US Customary** as the "Default all to" selection and then select **°K** from the dropdown list in the temperature "Units" field.

If the data being polled include rates, the scalar setting displayed to the right of the unit will determine the rate. To change the rate scalar for an individual category:

1. Click in the "Scalar for Rate" field next to the measurement category.
2. Select the desired scalar from the dropdown list.
3. Click **OK** to save changes.

For example, to measure liquid volume in bbl per hour (instead of the "per day" default setting), click in the "Scalar for Rate" field next to Liquid Volume and select **per hour** from the dropdown list. Reference Figure 3.1, page 11, for assistance.

Note Scalars apply only to registers that are indicators of rate. Scalar settings for all other measurements are not editable.

### *Applying Changes to All Registers*

By default, the changes made to units and rates apply only to new registers added to the currently open database. To apply these changes to all registers in a database, check the **Apply to All Registers** checkbox in the top left corner of the *General Options* screen (Figure 3.1, page 11) and click **OK** to save changes.

Note The **Apply to All Registers** checkbox will only appear after a database has been created.

## Changing Directories for Database Map and Manual Files

By default, ScanMap stores database files (.smp), Modbus maps (.pmap) and Modbus manuals (.html), as well as backup datafiles (.sbck) on the user's hard drive in the following directories:

- **C:\Cameron Data\ScanMap\Configurations** [database (.smp) files]
- **C:\Cameron Data\ScanMap\Maps** [Modbus maps (.pmap), backup database files (.sbck) and manual (.html) files]

To change the locations of these files,

1. Click in the appropriate field in the "Default Directories" section of the *General Options* screen.
2. Type the desired filepath (if known) or click on the folder next to the field and browse to the desired location.
3. Click **OK** to save changes.

Note You will also be prompted to choose a filepath when saving maps and manuals.

## Changing Input Names

By default, inputs have generic names. For easier identification, rename inputs by changing the entries in the "Input Categories" table on the *General Options* screen (Figure 3.1, page 11).

To change an input name, click in the "Input Name" field and enter the desired name. The new name will appear in all new input registers added to a group. Click **OK** to save changes.

Note Changing an input name will not change the name of inputs previously added to a group.

## Changing Analog Input and Pulse Input Categories

To change analog input and pulse input categories,

1. From the "Input Categories" section of the *General Options* screen, click in the "Category" field next to the analog input or pulse input you wish to change.
2. Select the desired measurement category from the dropdown list.

Note When a pulse input is configured for gas volume measurement, it is necessary to specify a calibration type (K-factor or meter factor) as well.

3. Repeat Steps 1 and 2 until all desired analog input and/or pulse input categories are changed.
4. Click **OK** to save changes.

Note Changing the input categories only applies to new registers; however, once the categories are set, the previously assigned registers can be automatically updated. For more information, see Standardizing Units in a Database and Restoring Units to Default Settings, page 32.

## Reducing the Map File Size

Map file size is dependent on the number of groups in a database. If the map file size exceeds the Scanner's upload capacity, ScanMap will prompt you with the following error message (Figure 3.2).

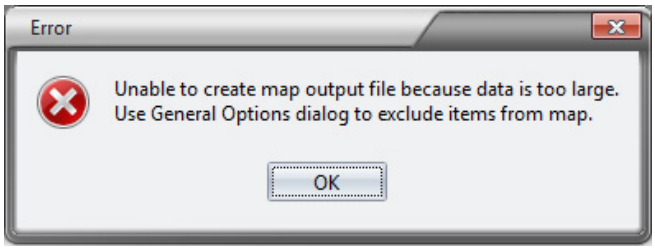


*Figure 3.2—"Data is too large" error message*

Should this error occur, reduce the number of groups in the file.

Note Deleting individual registers within groups has negligible effect on file size.

To further reduce file size, ensure that the **Make Manual Viewable in Web Interface** checkbox at the bottom of the *General Options* screen is unchecked (Figure 3.1, page 11). The manual (.html file) is accessible from the Maps output folder (C:\Cameron Data\ScanMap\Maps, by default) and can be shared via email if desired.

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# Section 4—Creating Databases and Configuring Register Maps

The first step in creating a custom Modbus map is to build a custom database. From the *File* menu, ScanMap users can create a new database from scratch (**File>New Database**) or from an existing database (**File>New from Existing**), as shown in Figure 4.1. ScanMap is preloaded with three databases that can be used as-is or modified with user-selected registers and units:

- ***S3100_MAP_TEMPLATE_ENRON_DEFAULT.*** Includes registers for Scanner 3100 and up to 20 networked Scanner 2000 series devices. Enron history is included.
- ***S3100_MAP_TEMPLATE_ENRON_BASE_UNIT.*** Includes registers for the Scanner 3100 only. Networked Scanner 2000 series devices are not included. Enron history is included.
- ***S3100_MAP_TEMPLATE_MODBUS.*** Includes the same registers as the S3100_MAP_TEMPLATE_ENRON_DEFAULT database but presents data in a 16-bit format. Enron history is not included.

Note Users who prefer a legacy version of these database templates can access them from the same template directory for use with the latest ScanMap software. The legacy templates are stored in a zip file (S3100_MAP_TEMPLATE_LEGACY.zip) in the default template directory C:\Cameron Data\ScanMap\Configurations. Simply unzip the folder to make the database (.smp) files selectable.

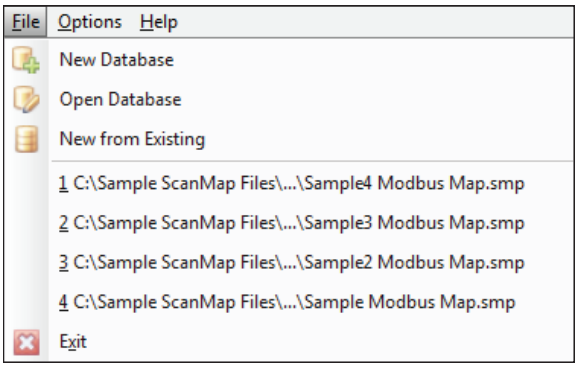


*Figure 4.1—File menu*

By default, new database (.smp) files are saved to the "C:\Cameron Data\ScanMap\Configurations" folder. To change the location to which the new database files are saved, see Changing Directories for Database Map and Manual Files, page 12.

Once a custom database is created, users can open it from the *File* menu to make modifications or verify register content by selecting **File>Open Database**. Legacy database files can be opened in ScanMap and saved for use with the current firmware version. For quick access, the *File* menu also includes links to the four most recently opened database files.

**CAUTION** **Do not use File>Open Database to create a database from a preloaded database unless you want to *permanently* change the contents of the preloaded database. Changes made to a database are permanent and become effective instantaneously (there is no "Cancel" button to undo changes and no prompt to save changes). To create a custom map from a preloaded database, choose File>New from Existing instead.**

**If changes are made to a preloaded protocol map unintentionally, follow the procedures in Restoring a Factory Default Database, page 33 to restore the preloaded protocol map(s).**

## Creating a New Database

Creating a new database from scratch allows you to customize the Modbus map.

Note If an existing database contains many of the registers desired, you may save time by opening a copy of the existing database and modifying it as desired. See Creating a New Database from an Existing Database, page 17 for details.

To create a new database from scratch,

1. Choose **File>New Database**. The *New Database* dialog will appear (Figure 4.2).

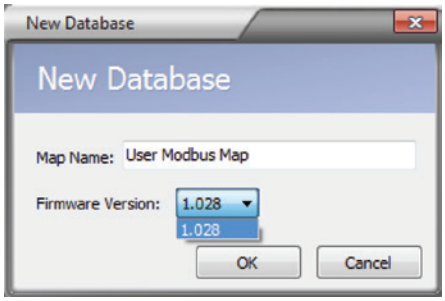


*Figure 4.2—New Database dialog*

2. As shown in, enter a unique name for the map title in the "Map Name" field and click **Save**. The name will appear at the top of the main screen, the top of the manual exported from this map, and at the top of any reports generated from a Scanner using the map.
3. From the "Firmware Version" dropdown menu, select a different firmware version if the map is being built for use with a different firmware version than the default version shown. The New Database dialog will close and a *Save Database As* dialog (Figure 4.3) will appear, populating the name selected in Step 2 as the database filename.

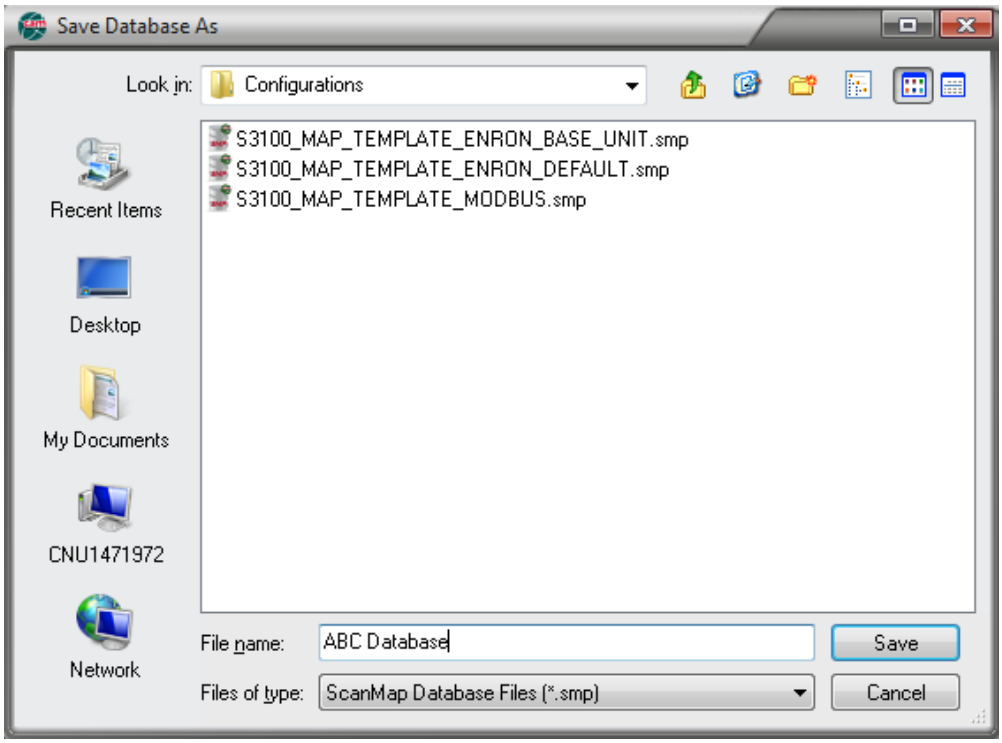


*Figure 4.3—Save Database As dialog*

4. Browse to the location to which you want the file stored or leave the default file location and click **Save** to store the database file.

Note Database files are saved to the “C:\Cameron Data\ScanMap\Configurations” folder by default.

## *Firmware Verification*

Note ScanMap software version 1.1.0 supports Scanner 3100 firmware versions 2.000 and later. ScanMap version 1.0.0 supports Scanner 3100 firmware versions 1.100 and 1.103.

If the firmware version used to create the map is not the current firmware version, ScanMap will prompt you to update the map to the newer version of firmware, as shown in Figure 4.4. To change the firmware version,

1. Click the **Change Firmware Version** button in the upper right corner of the main screen (Figure 4.4) and select the appropriate firmware version from *Change Firmware Version* dialog (Figure 4.5).

Note If a customized map contains registers that are no longer supported by the selected firmware version, the rows containing the unsupported registers will appear in red and an Exceptions Log will be generated when attempting to create a new map (.pmap).

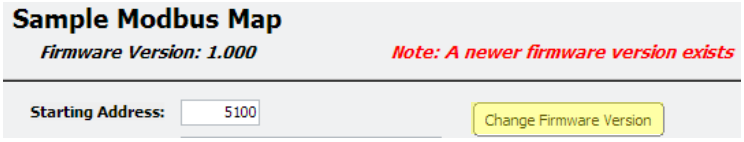


*Figure 4.4—Firmware Out-of-date note and location of Change Firmware Version button*


*Figure 4.5—Change Firmware Version dialog*

2. Click **OK**. The database will be updated with the new firmware and saved to its original directory, after which you will be returned to the main screen.

# Creating a New Database from an Existing Database

To use an existing database as a template for a new database,

1. From the main screen, choose **File>New from Existing** (Figure 4.1, page 15). The *Select Existing Database to Copy* dialog will appear (Figure 4.6, page 18).

2. Select the database file to be copied and click **Open**.

3. In the *Save Database As* dialog (Figure 4.3, page 16), browse to the desired save location,.enter a unique name in the “File Name” field and click **Save**.

Note Database files are saved to the “C:\Cameron Data\ScanMap\Configurations” folder by default.

4. Select **File>Change Map Name** and enter a unique name for the new map. The name will appear at the top of the main screen, in the title of the manual created from the map, and in any reports generated from a Scanner using the map.
5. Verify the firmware version and change if applicable. See Firmware Verification, page 17 for details.
6. Proceed to configure registers using the instructions in Configuring a Custom Map, page 19.

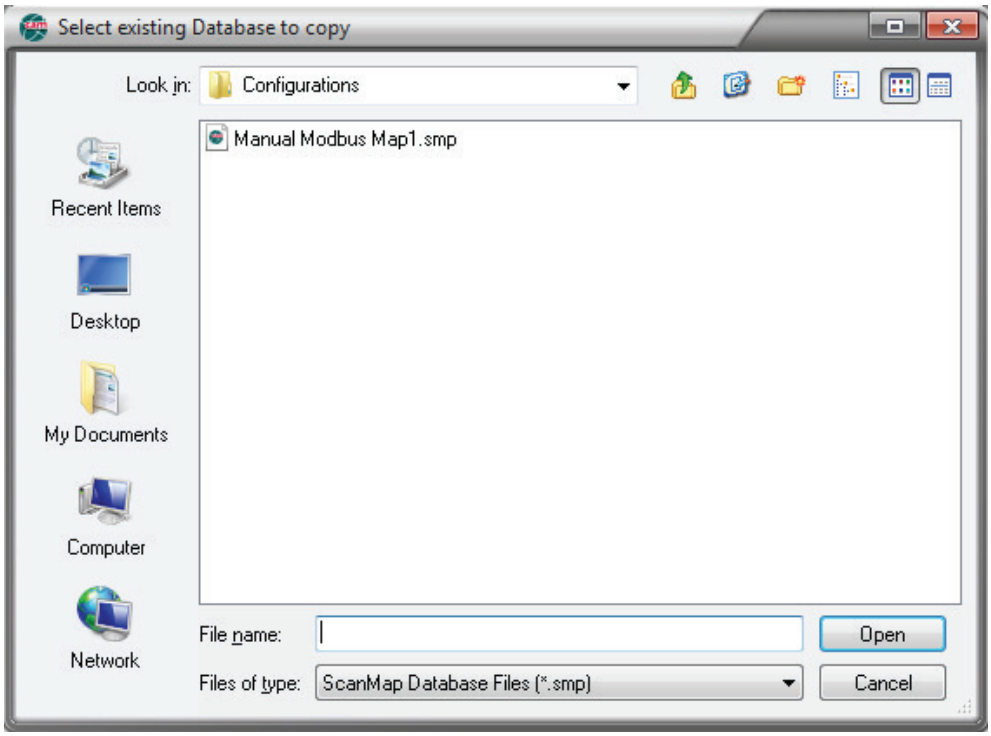


*Figure 4.6—Select Existing Database to Copy dialog*

7. When the database is verified as complete, proceed with creating a map or manual. See Section 5—Creating and Uploading a Modbus Map, page 23 for instructions.

## Editing an Existing Database

**CAUTION** **Before editing an existing database, make certain that it is your intent to *permanently* change the contents. Any changes you make to an existing database will overwrite database content without any prompts to save or cancel.**

**To use an existing database as the starting point for a new database without altering the existing database, choose File>New from Existing and save the file with a unique name. See Creating a New Database from an Existing Database, page 17 for details.**

To make changes to an existing database,

1. Choose **File>Open Database** (Figure 4.1, page 15).

Note To open the database file without having ScanMap opened, browse to the database file location and double-click on the filename.

2. From the *Select Database to Open* dialog (Figure 4.7, page 19), browse to the database you wish to open. By default, the pre-loaded databases are stored in the "C:\Cameron Data\ScanMap\Configurations" folder and user-created databases are stored in the "C:\Cameron Data\ScanMap\Maps" folder.

3. Click **Open**.
4. Proceed to configure registers using the instructions in Configuring a Custom Map, page 19.
5. When the database is verified as complete, proceed with creating a map or manual. See Section 5—Creating and Uploading a Modbus Map, page 23.

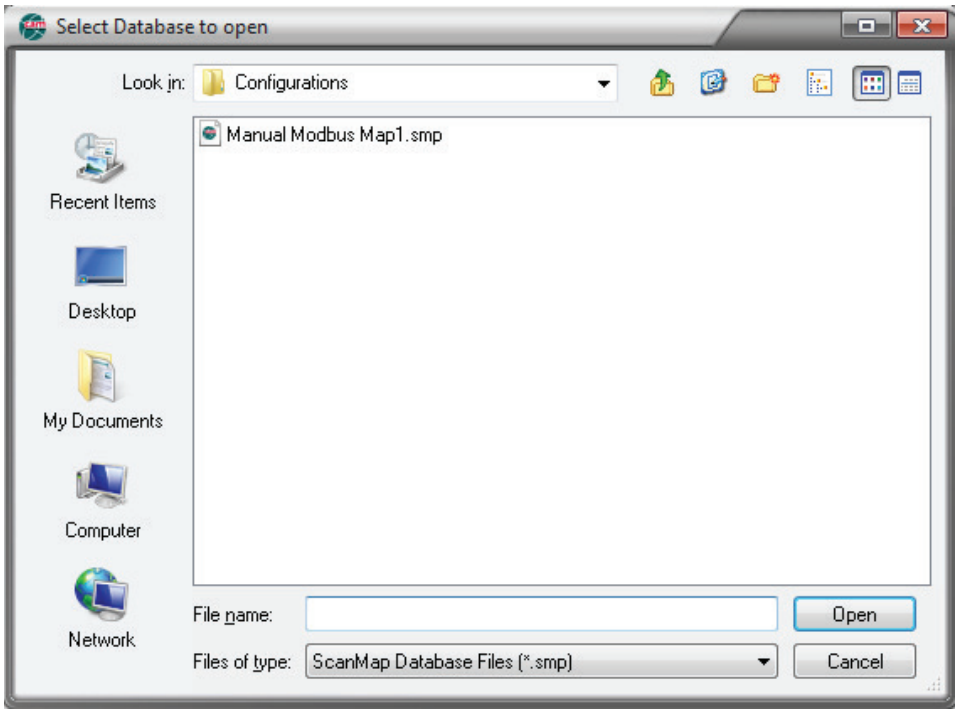


*Figure 4.7—Select Database to Open dialog*

## Configuring a Custom Map

**Important** **Once a database is created, the first step in creating a custom map is creating a register group using the "+" button near the top of the main screen.**

ScanMap allows users to create up to 100 register groups per database. To establish register groups for a Modbus map, perform the following steps:

1. Click the "**+**" button to add an unnamed register group to the grid on the left side of the screen (Figure 4.8).
2. Edit the starting address, group name and register size in the fields provided. If the map you are preparing is for an Enron-compliant host, refer to the "Suggested Enron Groups" box. Both 32-bit and 16-bit register sizes are supported.

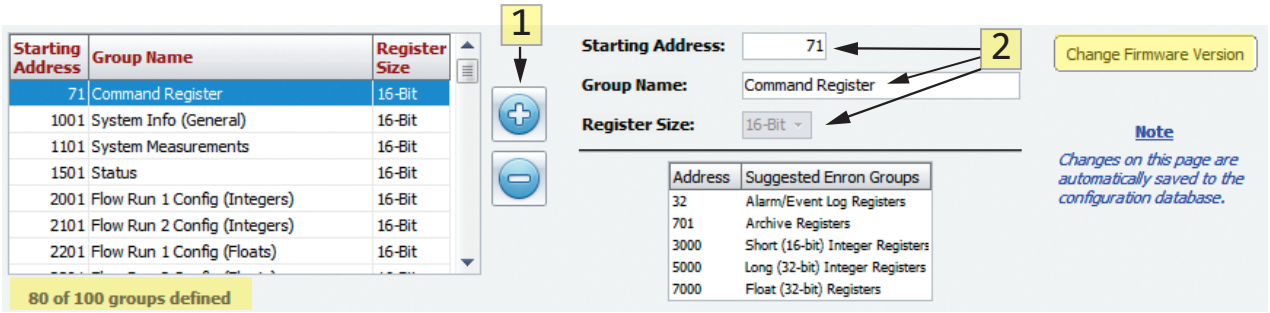


*Figure 4.8—Main screen showing steps for creating register groups*

3. Repeat Steps 1 and 2 until all desired register groups are established.
4. Select and configure registers from each group to be included in the custom map, or, if using a database that was creating from an existing database, edit the registers within each group using the steps described below.

## Selecting Registers from Each Group

To select the registers to be included in the custom map,

1. Click on a group in the grid at the top of the main screen to select (it will automatically be highlighted).
2. Click the **Edit Registers** (Figure 4.9) button on the left side of the page just below the "Group" grid. The *Edit Registers* screen will open (Figure 4.10, page 21).

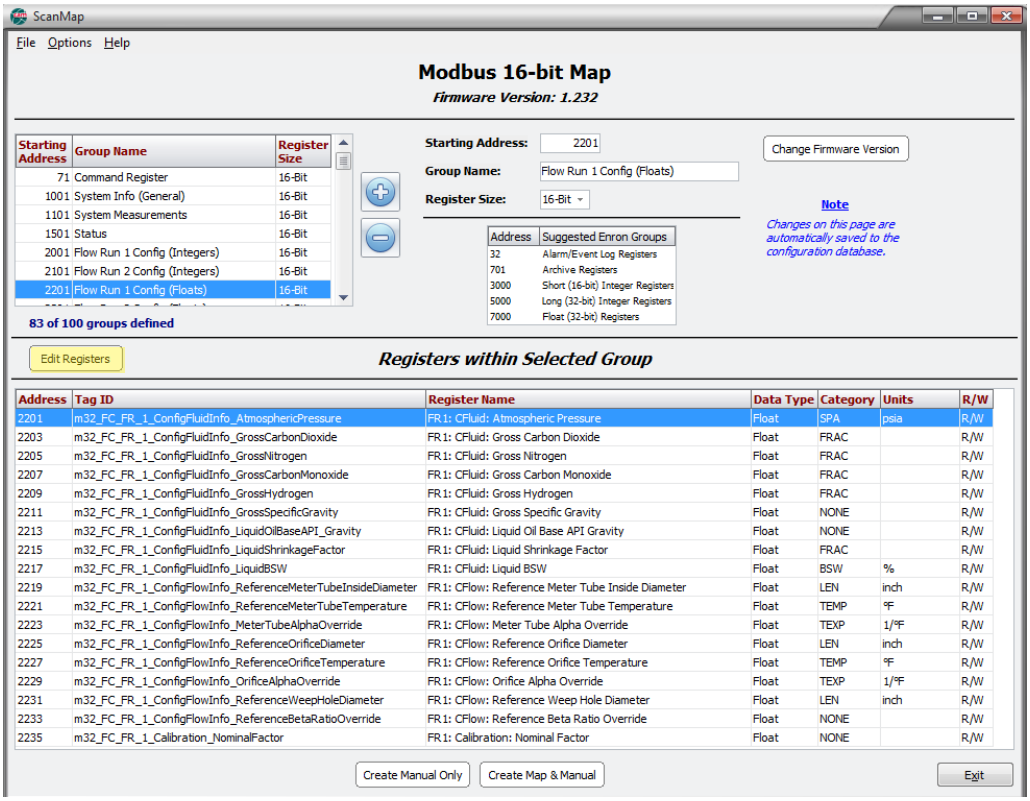


*Figure 4.9—Edit Registers button on the main screen*

3. In the "Available Registers" section of the screen, browse to the register you want by clicking on individual categories to expand the selections list or use the "Search" field to find a register by keyword. Click the **Find** button repeatedly to find the next match until there are no more matches.

Note Clicking the **Find** button begins the search from the highlighted register and searches down. To avoid missing your search parameter, highlight the topmost register before searching.

- By default, the "Available Registers" view shows only the main register categories. To view all available registers, click the **Expand All** button, shown on the right in Figure 4.11, page 21.
- Click the **Collapse All** button to view only the main register categories, as shown on the left in Figure 4.11, page 21.

4. To add a register to the bottom of the "Map Registers" list in the center of the screen, double-click the desired register or single-click it and click the right arrow. Alternatively, insert a new register at a specific location by clicking the register in the "Map Registers" list to mark the point of insertion, then double-clicking a register from the "Available Registers" panel. The new register will be inserted immediately below the register highlighted in the "Map Registers" section.

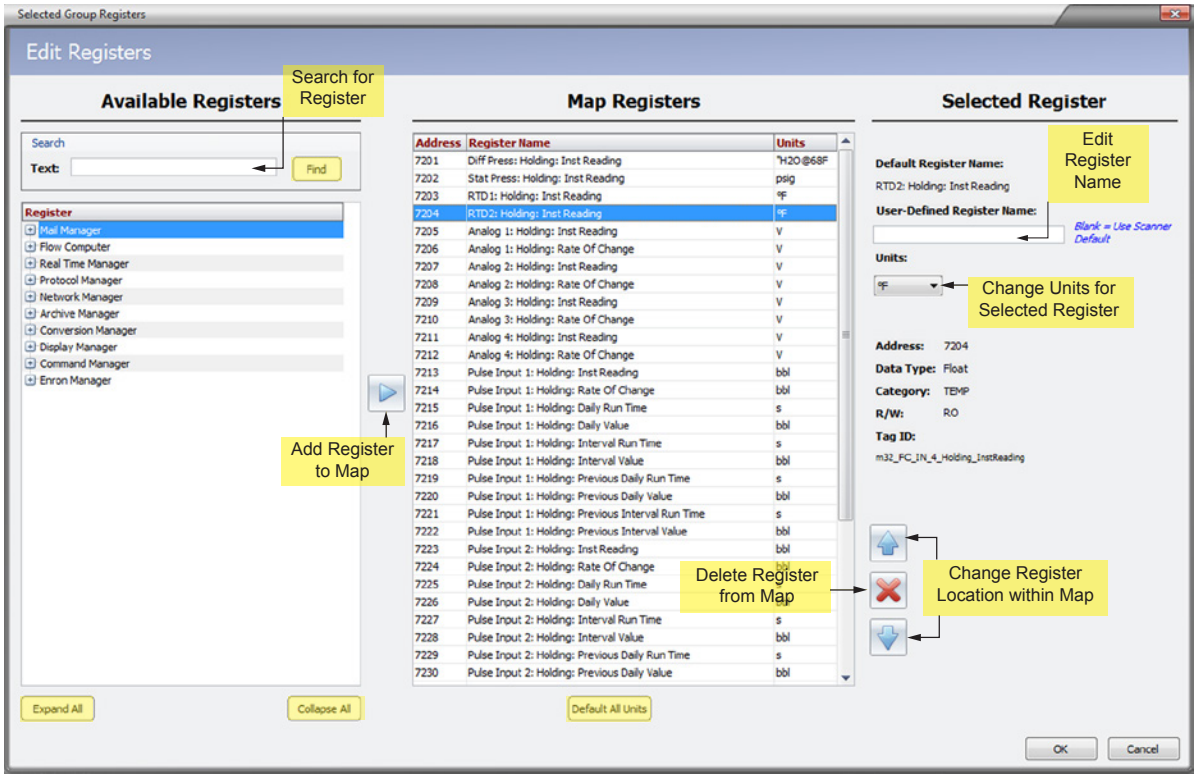


*Figure 4.10—Edit Registers screen*

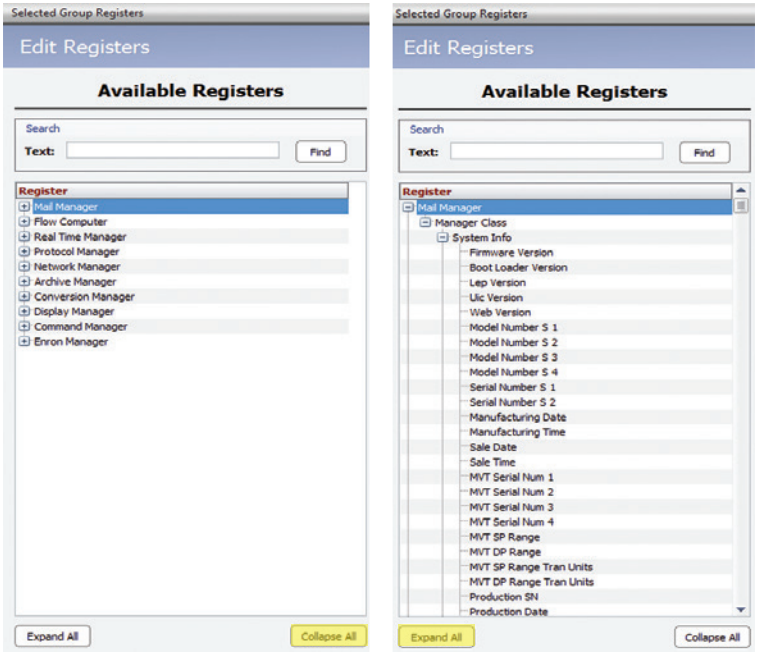


*Figure 4.11—"Available Registers" section of Edit Registers screen, collapsed view (left) and expanded view (right)*

Note To add multiple registers at one time, press and hold the **<CTRL>** key, click on the registers you want to add, and click the **Right Arrow** to add the selected registers to the "Map Registers" list.

5. Edit the register name or unit using the fields at the right of the screen (Figure 4.10, page 21), if desired. User-defined register names will be included in the .html manual, but will not appear elsewhere in the web interface.
   a. Click in the "User-Defined Register Name" field and enter a unique name for the register, if desired.
   b. Click in the "Units" field and select the desired unit of measure from the dropdown list.

Note For registers that are not associated with units of measure, the "Units" dropdown list will not be displayed.

**Important** **To make a universal change to unit type (SI Units or US Customary) or to change the unit associated with a specific measurement category, see Section 3—Configurable Options, page 11 for detailed instructions.**

6. Repeat Steps 1 through 5 for each register you want to add to the map.
7. Verify that the selected registers and register order are correct.
   a. To change the order in which a register appears in the map, select the register and click the **Up** and **Down** arrows to move the item higher or lower in the "Map Registers" list.
   b. To delete any register(s) added by mistake, select the register(s) and click the button.
   c. To revert to the default units for all registers within the selected group, click the **Default All Units** button below the "Map Registers" section of the screen. This sets the units to the default settings established in the *General Options* screen.
8. Click **OK** to save your changes or **Cancel** to discard all changes and exit to the main screen.
9. Click on the next register group and repeat the steps above until all registers are defined for the database.
10. When the database is verified as complete, proceed with creating a map and/or manual. See Section 5—Creating and Uploading a Modbus Map, page 23.

# Section 5—Creating and Uploading a Modbus Map

Once all desired changes have been made to a custom database, you are ready to create the custom map for uploading to the Scanner 3100. When you create the binary, uneditable map (.pmap) file, you also create the Modbus manual (.html). The Modbus manual lists the map registers in an easy-to-share .html file and can be opened with any web browser.

Buttons at the bottom of the main screen (Figure 5.1) give the user the option of creating a map and a manual, or creating only a manual.

## Creating a Manual Only

A ScanMap manual (.html) is ideal for distribution to others for review and validation before creating a final map for upload. To create only a manual file,

1. At the bottom of the main screen, click **Create Manual Only**.

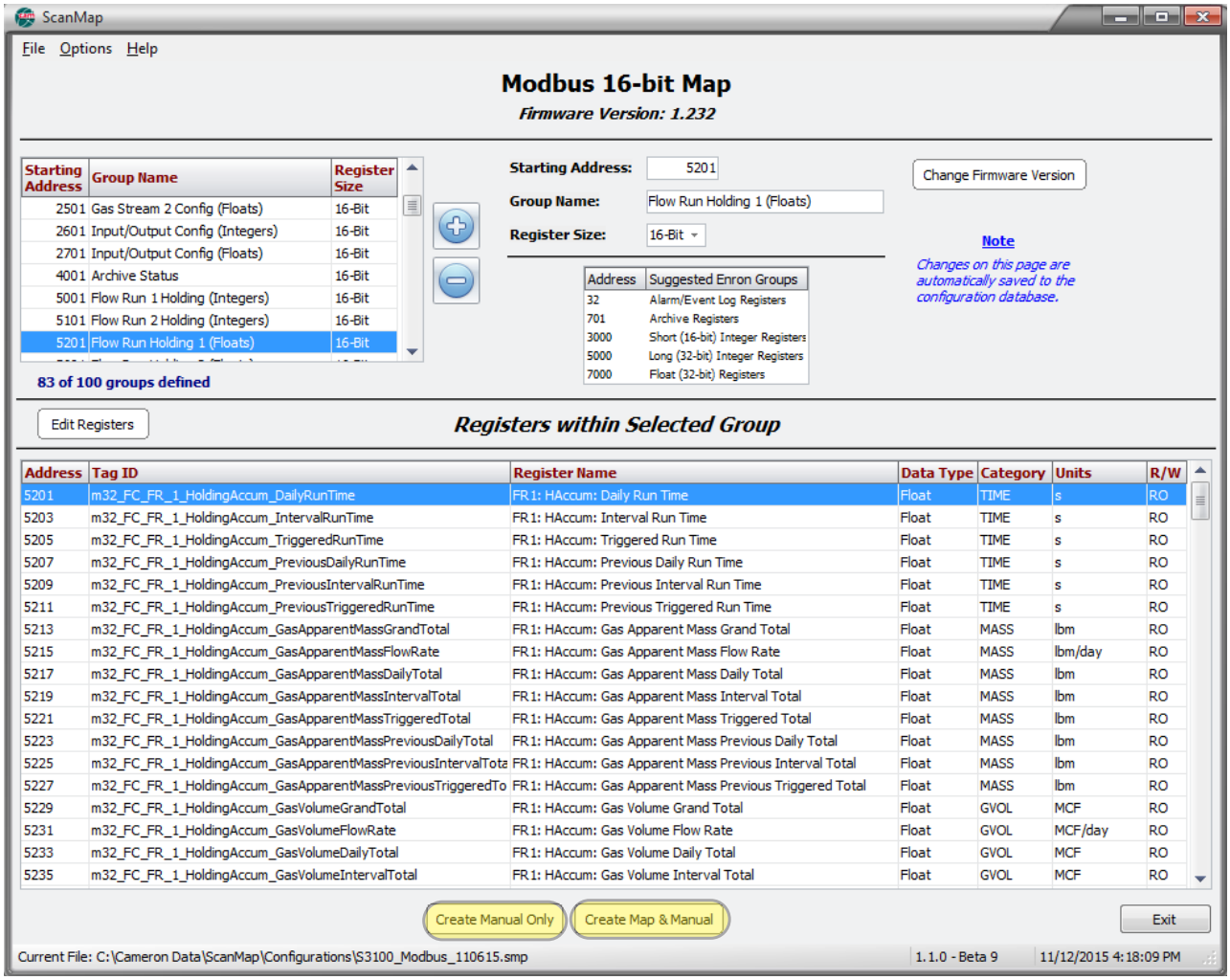


*Figure 5.1—Create Manual Only and Create Map and Manual buttons*

2. When the *Save As* dialog (Figure 5.2) appears, enter the desired name in the "File Name" field.

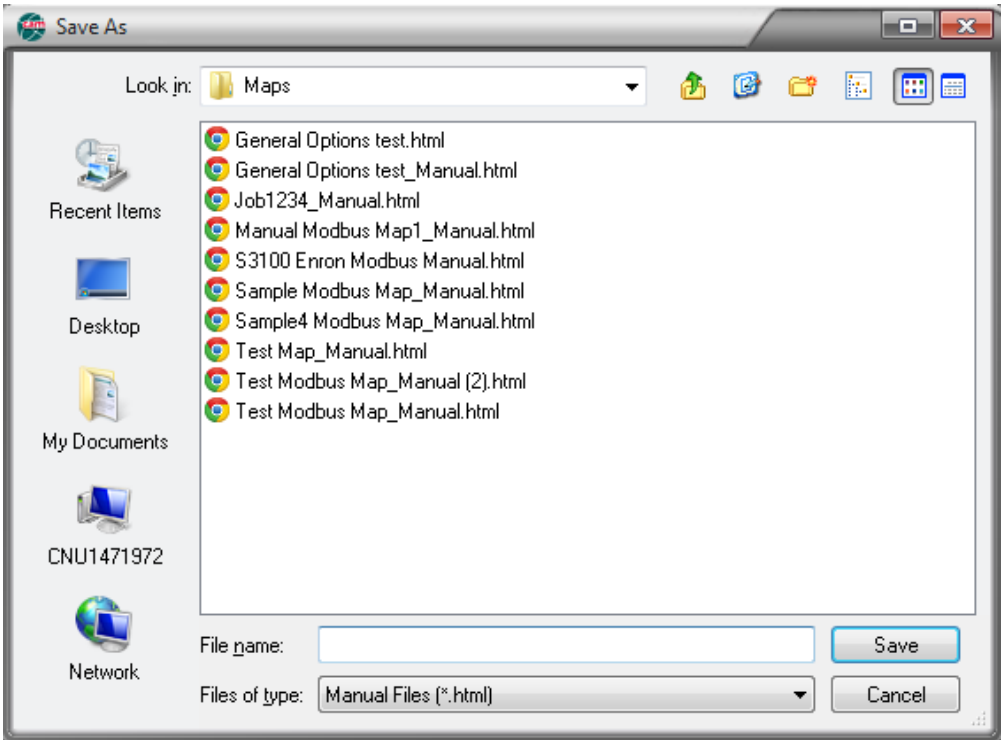


*Figure 5.2—Save As dialog when creating a manual only*

3. Click **Save**. The manual will be instantaneously displayed in the computer's web browser (Figure 5.3, page 25) and saved to the "C:\Cameron Data\ScanMap\Maps" folder by default, or in a user-specified directory.

Note Manual files can only be saved in .html format.

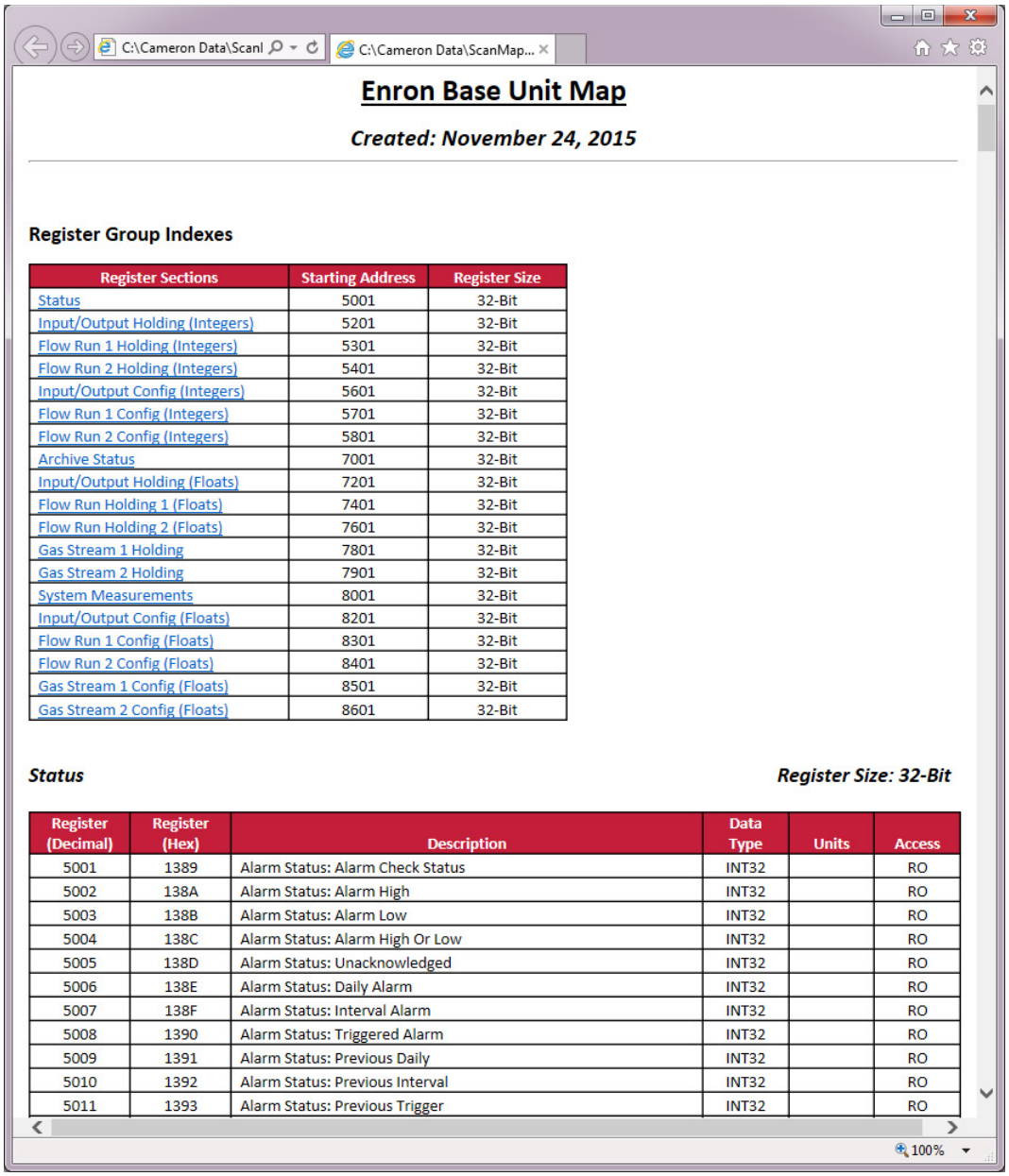


*Figure 5.3—Sample Modbus manual*

Note Each map begins with a list of selected register groups. A table of archive record units is shown with Enron maps that contain Enron-specific registers. The 16-bit Modbus maps do not include a units table.

## Creating a Map and Manual

When the map and manual are created simultaneously, both can be uploaded to the Scanner 3100 web interface and the manual can be viewed from within the interface. To create a map and manual,

1. At the bottom of the main screen (Figure 5.1, page 23), click **Create Map and Manual**.

Note The manual is viewable within the interface only when the **Make Manual Viewable in Web Interface** checkbox is checked on the *General Options* screen. See General Options Screen, page 9 for more information.

2. When the *Save As* dialog (Figure 5.4) appears, enter the desired name in the "File Name" field. This name will be used for both the map (.pmap) and manual (.html) files. The map and manual files will be saved to the "C:\Cameron Data\ScanMap\Maps" folder unless otherwise specified.

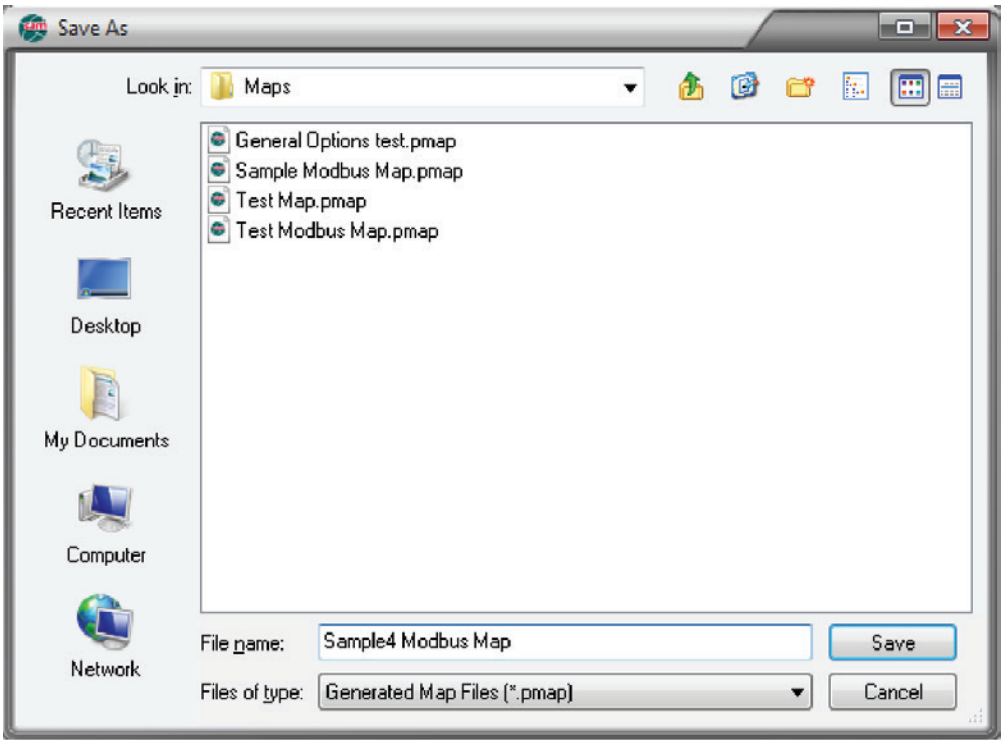


*Figure 5.4—Save As dialog when creating a map*

3. If the database includes registers that are not supported by the firmware selected, the following warning message (Figure 5.5) will be displayed, the invalid registers will appear red in the *Edit Registers* dialog and an Exceptions Log will be created and stored in the "Maps" folder. Click **OK** to proceed with saving the map and manual files.

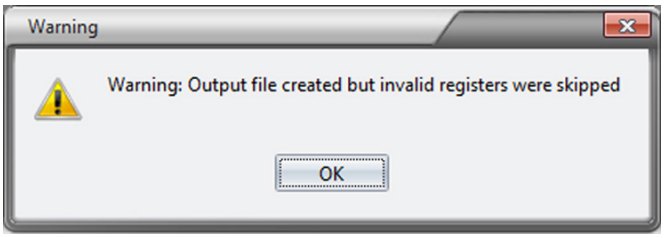


*Figure 5.5—"Invalid registers" warning*

4. Click **Save**.

## Backup Database Files

When a map (.pmap) file is saved to the C:\Cameron Data\ScanMap\Maps folder, a backup copy of the database (.sbck) file used to create the map is saved to the same Maps folder by default. This file exists for the sole purpose of restoring a database to the contents used to create a known manual in the event that the primary database file in the Configurations folder that was used to create the map is deleted or is accidentally overwritten.

The backup file is easily recognized by its filename and .sbck extension. The backup filename contains important information that is useful in matching a database file to the manual that was created from it. The .sbck filename includes the following information:

- User-specified map name
- Date of map file creation
- Time of map file creation
- Map firmware version

For example, if a map is named “Flow Run 1 Modbus Map,” the backup database filename will be Flow Run 1 Modbus Map_[YYYYMMDD]_[HHMM]_[FIRMWARE VERSION].sbck.

**Important** **Whereas database files are typically stored in the “Configurations” folder upon creation, the backup database file is stored with the map in the “Maps” folder. In the event the database in the “Configurations” folder is accidentally changed or deleted after the map is created, the user can still access the register configuration used to build the map file by converting the backup file to a selectable database file. See Restoring a Custom Database File from a Backup File, page 33 for instructions on restoring a database file from a backup file.**

## Uploading a Map to the Scanner 3100

Custom Modbus maps can be uploaded to the Scanner 3100 using ScanFlash® software or the Scanner 3100 web interface.

### *ScanFlash*

To install ScanFlash software, visit Cameron’s Measurement website at http://www.c-a-m.com/flowcomputers, select **CAMERON Flow Computer Scanner 3100**, and click on the link for the ScanFlash install. A zip file will be downloaded to your laptop or PC. To install the utility

1. Unzip/extract the installation folder.
2. Open the unzipped installation folder and run the “setup.exe” file. When the installation is complete, a ScanFlash desktop shortcut will appear on the computer desktop (Figure 5.6).


*Figure 5.6—ScanFlash icon*

To upload a custom Modbus map

1. Open the ScanFlash utility.
2. Select **3100** from the *Model* dropdown menu.
3. Enter the IP address used to connect to the desired Scanner 3100 (Figure 5.7, page 28).

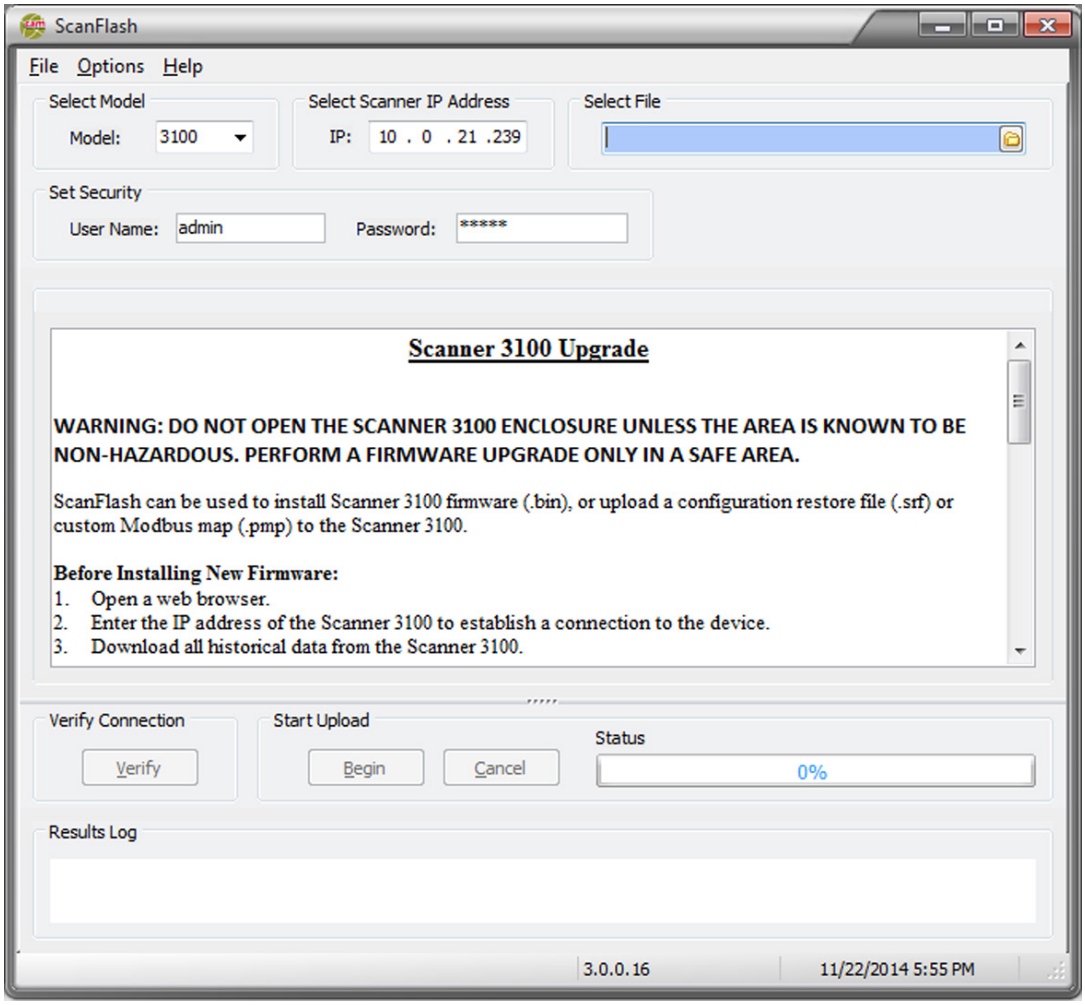


*Figure 5.7—ScanFlash interface*

4. Select the Modbus map (.pmap) to be uploaded from C:\Cameron Data\ScanMap\Maps (Figure 5.8, page 29).
5. Enter the user name and password used to access the Scanner 3100 web interface.

**Important** **Users must have Configurator or Administrator access level to upload a map file to the Scanner 3100. If any other user level attempts to do so, the *Results Log* screen will display an "Insufficient Access Level" error message.**

6. In the "Verify Connection" section, click **Verify**. The button will turn blue while the utility attempts to communicate with the Scanner.
   - When a connection has been verified, the Scanner's system information will appear in the Results Log at the bottom of the screen.
   - If a connection cannot be made, an error message will appear. Check the IP address, the username and the password and click **Verify** again.

**Important** **The firmware version selected for creating the map must match the version of firmware installed in the Scanner 3100. If the firmware versions are not the same, the map will not load successfully. To select the correct firmware version, see** Changing the Firmware Version, page 31**.**

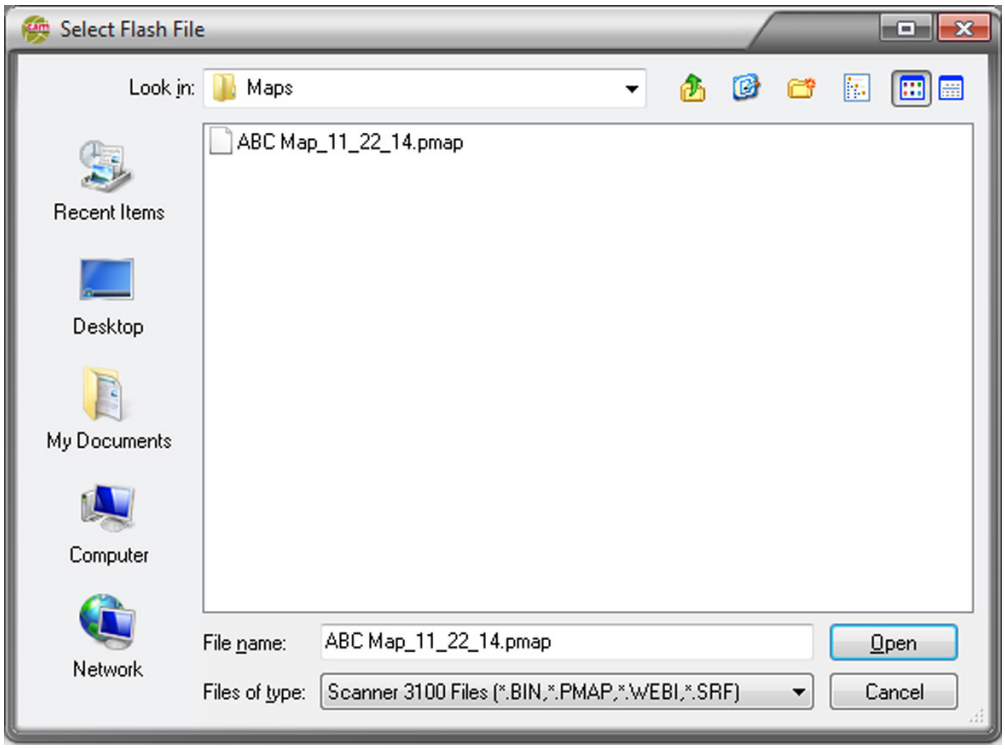


*Figure 5.8—Select Flash File dialog*

7. When a connection with the device is confirmed, click **Begin** in the "Start Upload" section to begin the upload to the Scanner 3100. The *Status* bar will show the progress of the upload completion.
8. When the upload is complete, ScanFlash will automatically disconnect from the Scanner 3100 and the Results Log at the bottom of the screen will display "Successfully Flashed Scanner."

### Troubleshooting

If the upload does not complete as expected, communications may have been lost during the upload or the file you were attempting to upload was created for use with a different version of firmware than that installed on the Scanner 3100. To resolve this issue,

1. Check for firmware compatibility (see Firmware Verification, page 17). If firmware is compatible, proceed to Steps 2 through 5.
2. Click **Cancel** to abort the upload.
3. Remove power from the Scanner 3100.
4. Restore power to the Scanner 3100.
5. Restart ScanFlash and repeat the upload process.

## *Scanner 3100 Web Interface*

To upload a custom Modbus map using the Scanner 3100 web interface

1. Log into the device using any web browser.
2. Choose the Administration tab at the top of the interface, and click the General dropdown selection.
3. Click the Installed Files button at the left of the screen to access the Installed User Files page.
4. Under the heading "Install Protocol Map File," browse to the desired .pmap file, select it, and click Submit.

For additional information, see the Scanner 3100 Web Interface manual.

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# Section 6—Map/Register Maintenance

Most of the decisions about formatting a custom Modbus map will be made during the creation of the database. However, there may be occasions where the user wishes to make a change to a map after a database is created. This section discusses changes that may be required in maintaining the Scanner 3100 map over time.

## Changing the Map Name

When creating a map, the title at the top of the main screen will appear in the title of the manual created from the map and in any reports generated from a Scanner using the map. This step is especially useful when creating a new database from an existing one to ensure the map and manual created with the new database is uniquely identified. To change the title

1. Choose **Options>Change Map Name**. The *Change Map Name* dialog (Figure 6.1) will appear.

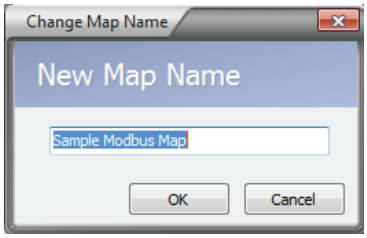


*Figure 6.1—Change Map Name dialog*

2. Enter the new map name in the field provided.
3. Click **OK**. The new title should appear at the top of the screen.

## Changing the Firmware Version

Once a database is created, a user can modify it for a Scanner device operating on a different firmware version by editing the firmware version as follows:

1. Click on the **Change Firmware Version** button in the upper right corner of the main screen.
2. Select the firmware version you wish to use from the *Change Firmware Version* dropdown list, as shown in Figure 6.2.


*Figure 6.2—Change Firmware Version dialog*

**Important** **Any change you make will be saved in the database. If you intend to make changes other than to the firmware version, consider creating a new database from an existing one (see Creating a New Database from an Existing Database, page 17, for details) before making the firmware version change.**

Note If a customized map contains registers that are no longer supported by the selected firmware version, the rows containing the unsupported registers will appear in red and an Exceptions Log will be generated when attempting to create a new map (.pmap).

3. Click **OK** to return to the main screen.

## Standardizing Units in a Database

By default, the changes made to units and rates from the *General Options* screen apply only to new registers added to a database. To extend these changes to all registers in a database,

1. Open the database file (.smp) to be changed.
2. Access the *General Options* screen by choosing **Options>General Options**.
3. Click the **Apply to All Registers** checkbox in the "Default Measurement Units Configuration" section of the *General Options* screen (see Figure 2.3, page 9).
4. Click **OK**.

## Restoring Units to Default Settings

If you made changes to a map's display units on the *Edit Registers* screen, but now you want to use the default units you established in *General Options* screen configurations,

1. Open the database file (.smp) to be changed.
2. Open the *Edit Registers* screen by clicking the **Edit Registers** button on the main screen (see Figure 4.9, page 20).
3. Locate and click the **Default All Units** button centered below the "Map Registers" section of the screen (Figure 6.3).
4. Click **OK**.

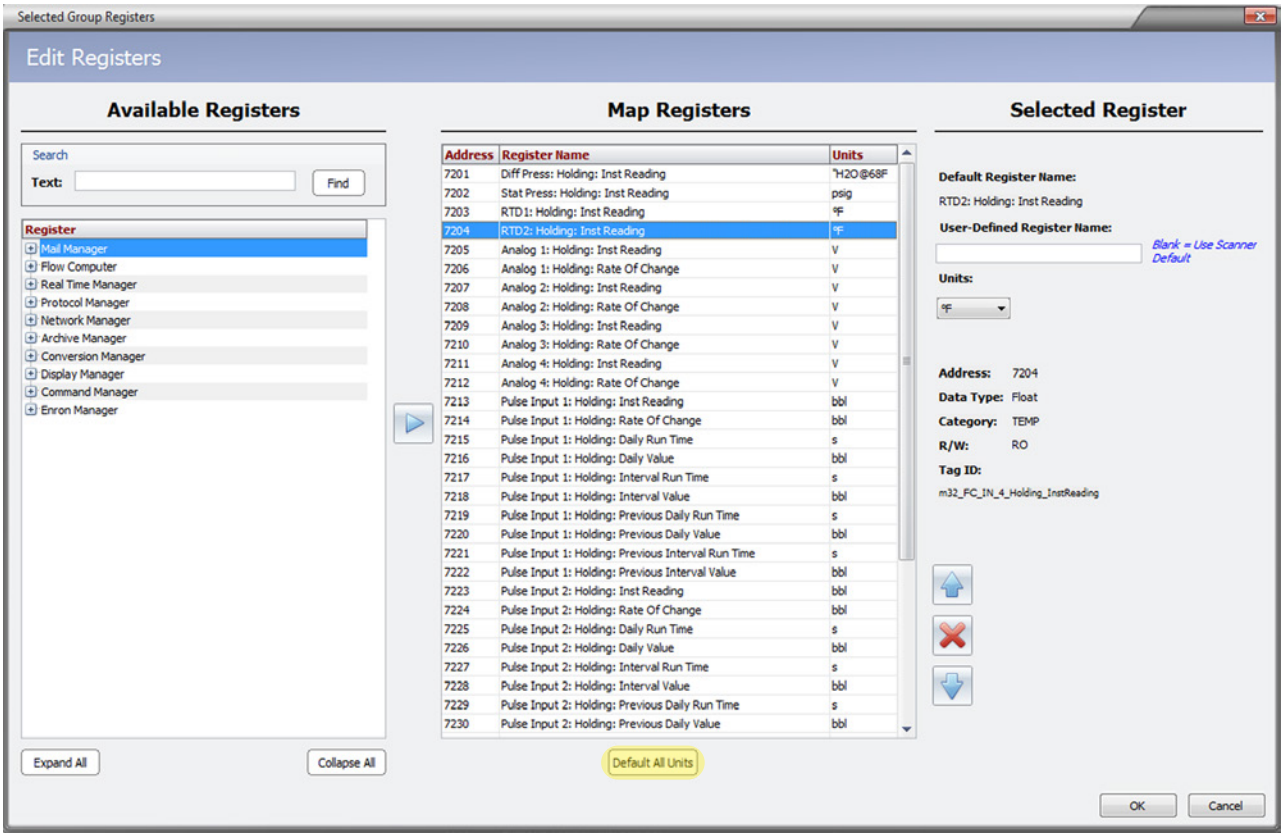


*Figure 6.3—Default All Units button*

# Restoring a Custom Database File from a Backup File

Typically the database file used to create a map are stored in the C:\Cameron Data\ScanMap\Configurations folder for use in creating new custom maps as needed.

However, in the event that the database file in the Configurations folder that was used to create the map is deleted or is accidentally overwritten, you can restore the database contents using a backup file that is auto-generated each time a map is created.

**Important** **Whereas database files are typically stored in the "Configurations" folder upon creation, the backup database file is stored with the map in the "Maps" folder.**

## *Backup Database Files*

When a map (.pmap) file is saved to the C:\Cameron Data\ScanMap\Maps folder, a backup copy of the database (.sbck) file used to create the map is saved to the same Maps folder by default.

The backup file is easily recognized by its filename and .sbck extension. The backup filename contains important information that is useful in matching a database file to the manual that was created from it. The .sbck filename includes the following information:

- User-specified map name
- Date of map file creation
- Time of map file creation
- Map firmware version

For example, if a map is named "Flow Run 1 Modbus Map," the backup database filename will be Flow Run 1 Modbus Map_[YYYYMMDD]_[HHMM]_[FIRMWARE VERSION].sbck.

## *Database Restoration*

To restore a database file using a backup file,

1. Make a copy of the backup (.sbck) file in the Maps folder and paste it into the C:\Cameron Data\ScanMap\Configurations folder.
2. Change the .sbck extension to .smap. If desired, the filename can also be changed at this time. A caution prompt will appear, advising that the file may become unusable when the extension is changed. Click "Yes" to confirm your intent to change the extension and close the dialog.
3. The .smap file is now selectable from the file menu using the Open Database or New From Existing selection. See Creating a New Database from an Existing Database, page 17, and Editing an Existing Database, page 18, as required.

# Restoring a Factory Default Database

Database changes are permanent and become effective instantaneously (there is no "Cancel" button to undo changes and no prompt to save changes). Therefore, users are discouraged from making changes to the preloaded database templates. See Creating a New Database from an Existing Database, page 17.

If changes are made to a preloaded database template unintentionally, the user can restore it using a ScanMap backup directory, as follows.

1. Exit ScanMap and navigate to the "C:\Cameron Data\ScanMap\Configurations" folder.
2. Double-click S3100_MAP_TEMPLATE_BACKUPS.zip to view the contents (Figure 6.4, page 34).
3. Click **Extract Files** to save a copy of the files in a separate "S3100_MAP_TEMPLATE_BACKUPS" folder.
4. Open the "S3100_MAP_TEMPLATE_BACKUPS" folder, right-click the protocol map that was overwritten and select **Copy**.

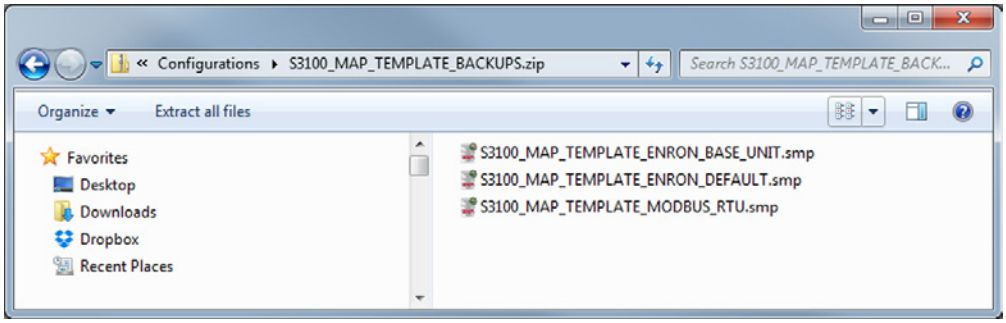


*Figure 6.4—S3100_Map_Template_Backups directory*

5. Return to the "C:\Cameron Data\ScanMap\Configurations" folder, right-click anywhere within the folder and select **Paste**.
6. If prompted to overwrite the existing file, click **OK**. The default protocol map will be restored.

**Important** **Do not browse to the "S3100_MAP_TEMPLATE_BACKUPS" folder directly from ScanMap. This will change the default path for saving maps.**

**Important** **ScanMap software installs only one backup file for each preloaded database template. If a backup file is accidentally overwritten, the ScanMap software must be uninstalled and reinstalled to restore the preloaded factory default database templates.**

# Section 7—Technical Support

For assistance with technical issues,

1. Choose **Help>About** from the main screen. The *About ScanMap* screen will appear (Figure 7.1).


*Figure 7.1—About ScanMap screen*

2. Click on the **Technical Support** button to access a phone number or email address for the regional Cameron office nearest you (Figure 7.2).

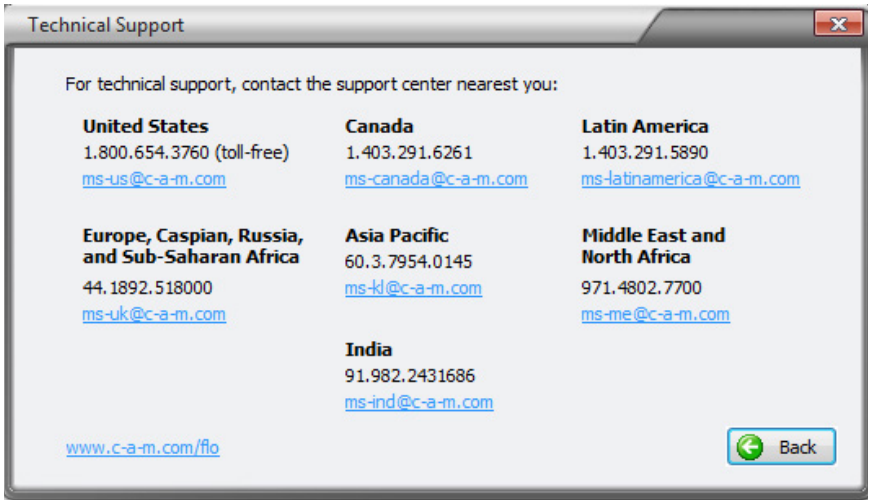


*Figure 7.2—Technical Support screen*

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